LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA1 | Euston - Station and Approach

Baseline (SV-002-001)

Sound, noise and vibration

November 2013

VOL 5

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1 Introduction

1.1 Structure of the sound, noise and vibration appendices

1.1.1 The sound, noise and vibration appendices comprise four sections. The first of these is an introduction to the relevant policy and methodology (Volume 5: Appendix SV-001-000). This relates to the sound, noise and vibration assessment for all community forum areas (CFA).

1.1.2 For the Euston - Station and Approach area, the other three sections are as follows:

- baseline sound, noise and vibration (Volume 5: Appendix SV-002-001) (this appendix);
- construction sound, noise and vibration (Volume 5: Appendix SV-003-001); and
- operational sound, noise and vibration (Volume 5: Appendix SV-004-001).

1.1.3 Maps referred to within this appendix are contained in the Volume 5, Sound, Noise and Vibration Map Book.

1.1.4 This appendix includes details of the existing and future baseline sound environment within the area. It provides details of measurements and any other data collection which has been undertaken in order to obtain existing and future baseline sound levels.

1.2 Existing acoustic environment

1.2.1 The existing baseline sound environment for this area is typical of urban central London.

1.2.2 Sound levels are high in close proximity to busy multi-lane roads, such as Euston Road, where daytime sound levels are typically around 75 dB[1]. However, due to the screening provided by buildings and other structures, sound levels can be much lower (typically around 55 to 60dB) on side-roads away from the major thoroughfares.

1.2.3 To the north of Euston Station, sounds from existing trains (including 'wheel squeal'), traffic on Hampstead Road and other local roads contribute to the prevailing sound environment. Here, daytime sound levels are typically around 65 to 70dB.

1.2.4 To the east of the station, sound from traffic on the A4200 Eversholt Road, a relatively busy road, dominates the sound environment and daytime sound levels are typically around 70dB. Side roads away from the station have lower sound levels, due to the screening effect of buildings and other obstacles between these locations and the main road traffic sound sources, resulting in daytime sound levels of typically around 55 to 60dB.

1.2.5 Located to the south of the station is the A501 Euston Road, which is a very busy cross London route. Local to this road, traffic movements, including many buses and heavy goods vehicles (HGV), generate sound levels during the day of around 75dB. Further to the south, although smaller side roads can be screened from the busy main roads and typically experience sound levels around 65dB, local traffic still dominates the sound environment.

[1] Quoted dB values at residential areas refer to the free-field 16 hour daytime (07:00 to 23:00) equivalent continuous sound pressure level, $L_{pAeq,16hr}$.

1.2.6 To the west of the station, at St James's Gardens and the surrounding areas, sound levels are relatively low for an urban environment. Daytime levels are typically around 55dB, due to the screening of the main roads by buildings and other obstacles. For example, the playground of Maria Fidelis Convent (Lower) School which borders St James's Gardens benefits from such screening and experiences sound levels which are relatively low for such an urban location.

1.2.7 Night-time sound levels[2] across the study area are 2 to 4dB lower than the daytime level where it is dominated by road traffic on busy main roads and 5 to 8dB lower in locations further away from these roads.

[2] Night-time sound levels refer to the free-field 8 hour night-time (23:00 to 07:00) equivalent continuous sound pressure level, $L_{pAeq,8hr.}$

2 Scope, assumptions and limitations

2.1 Sound and vibration sensitive receptors

2.1.1 Within the Euston - Station and Approach area, 105 assessment locations have been defined to represent all identified sound and vibration sensitive receptors within the spatial scope. The assessment locations are shown on the detailed maps in Map Series SV-03 and SV-04 (Volume 5, Sound, Noise and Vibration Map Book). Within this area, the following types of sound and vibration sensitive receptors have been identified:

- residential areas;
- education facilities;
- community centres and meeting facilities;
- places of worship; and
- healthcare facilities.

2.2 Local engagement

2.2.1 Discussions have been held with representatives of London Borough of Camden regarding the approach which has been taken to baseline monitoring within this area, the identification of noise and vibration sensitive receptors, the selection of assessment location and baseline sound levels at these assessment locations.

2.2.2 Changes suggested during these meetings have influenced the assessment locations used and the monitoring undertaken and reported in this document.

2.2.3 Representatives of the London Borough of Camden have been invited to attend baseline sound measurements and witness the measurement procedures used in the Council's district, however, council officers have not been able to attend any of these invitations.

2.2.4 Local engagement through community forum meetings and other community groups e.g. Camden Cutting, has also provided the opportunity for local groups to suggest appropriate baseline sound monitoring locations. Any suggestions received from these groups have been considered and have influenced the monitoring undertaken and reported in this document.

2.3 Existing baseline sound monitoring locations

2.3.1 In some parts of this area, due to limited land access, baseline sound levels have been derived by means of extrapolation of sound levels measured at similar locations in the area and neighbouring CFA.

2.3.2 Maps showing the baseline sound monitoring locations and assessment locations within this area are included in Map Series SV-03 and SV-04 (Volume 5, Sound, Noise and Vibration Map Book).

3 Effects arising during construction

3.1 Existing baseline data collection methodology

3.1.1 The overall approach to baseline data collection for sound noise and vibration is described in Volume 5: Appendix SV-001-000.

3.1.2 Over the Euston - Station and Approach area, a large number of baseline sound measurements have been undertaken. These have been classified as follows:

- long-term measurements – unattended measurements of several days duration;
- medium-term measurements – attended measurements of several hours duration (generally repeated at different times of day); and
- short-term measurements – attended measurements typically of 30 minutes duration (generally repeated at different times of day).

3.1.3 In this CFA a total of 23 baseline measurements have been undertaken.

3.1.4 In the area around Euston Station, three long-term measurements were undertaken at residential properties in close vicinity to the station where baseline sound levels were representative of those at surrounding properties. Four short-term measurements were also undertaken at various locations in close proximity to the station to supplement the long-term measurements.

3.1.5 In the area surrounding the station approach, four long-term measurements were undertaken south of the A4201. A further twelve short-term measurements were undertaken at publically accessible locations to supplement these long-term measurements.

3.2 Existing baseline sound levels

3.2.1 From the measurements described in Section 3.1, baseline sound levels have been ascertained for each assessment location within this area. These levels are presented in terms of the following key sound indicators:

- For the operational sound assessment
  - $L_{pAeq,16hr\ weekday}$ daytime (07:00-23:00) sound pressure level;
  - $L_{pAeq,8hr\ weekday}$ night-time (23:00-07:00) sound pressure level;
  - arithmetic average of $L_{pAFmax,5min}$ night-time sound pressure level; and
  - highest $L_{pAFmax,5min}$ night-time sound pressure level.
- For the construction sound assessment
  - daytime L_{pAeq} sound pressure level (Monday to Friday 07:00-19:00; Saturday 07:00-13:00);

- evening/weekend L_{pAeq} sound pressure level (Monday to Friday 19:00-23:00; Saturday 13:00- 23:00; Sunday 07:00 to 23:00);and
- night-time L_{pAeq} sound pressure level (Monday to Sunday 23:00-07:00);

3.2.2 These values are presented in Table 1. The data source coding included within this table details how the baseline sound levels allocated to each assessment location have been derived. This coding is summarised in Table 2 and explained in detail in Volume 5: Appendix SV-001-000.

Table 1: Existing baseline sound levels

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding
			For operational sound assessment				For construction sound assessment			
			Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$	Arithmetic average of night-time $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	Daytime L_{pAeq}	Evening/ weekend L_{pAeq}	Night-time L_{pAeq}	
519788	Euston Road, London	LM1307	74.9	70.9	80.9	97.5	75.3	74.7	71.0	3,A,ii,b
520315	Parkway, London	LM0061	51.4	46.5	54.7	71.0	51.7	48.7	46.2	1,A,ii,b
520752	Eversholt Street, London	LM1049	69.6	67.2	79.8	99.3	69.9	68.9	67.2	1,A,ii,b
521033	Park Village East, London	LM1310	62.9	57.4	72.5	87.7	63.2	61.4	56.7	3,A,ii,b
521556	Redhill Street, London	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,iii,b
522490	Augustus Street, London	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,iii,b
523758	Parkway, London	LM0061	51.4	46.5	54.7	71.0	51.7	48.7	46.2	1,A,i,a
523809	Mornington Terrace, London	LM1309	60.4	55.5	66.5	82.8	60.7	57.7	55.2	3,A,ii,b
523826	Mornington Terrace, London	LM1309	60.4	55.5	66.5	82.8	60.7	57.7	55.2	3,A,ii,b
523935	Albert Street, London	LM1075	55.2	46.7	50.8	70.6	55.5	63.6	46.3	1,A,iii,b
525979	Arlington Road, London	LM1075	55.2	46.7	50.8	70.6	55.5	63.6	46.3	1,A,iii,b
527860	Albany Street, London	LM1310	62.9	57.4	72.5	87.7	63.2	61.4	56.7	3,A,iii,b
528008	Park Village West, London	LM1074	51.4	45.7	51.9	70.8	51.7	48.3	44.9	1,A,ii,b
528051	Cumberland Terrace, London	LM1310	62.9	57.4	72.5	87.7	63.2	61.4	56.7	3,A,iii,b
528192	Cumberland Terrace Mews, London	LM1310	62.9	57.4	72.5	87.7	63.2	61.4	56.7	3,A,iii,b
528324	Park Village East, London	LM1074	51.4	45.7	51.9	70.8	51.7	48.3	44.9	1,A,iii,b
528405	Albany Street, Regent'S Park	LM1074	51.4	45.7	51.9	70.8	51.7	48.3	44.9	1,A,iii,b

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding
			For operational sound assessment				For construction sound assessment			
			Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$	Arithmetic average of night-time $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	Daytime L_{pAeq}	Evening/ weekend L_{pAeq}	Night-time L_{pAeq}	
528585	Park Village East, London	LM1310	62.9	57.4	72.5	87.7	63.2	61.4	56.7	3,A,i,a
528600	Park Village East, London	LM1310	62.9	57.4	72.5	87.7	63.2	61.4	56.7	3,A,i,a
528624	Park Village East, London	LM1310	62.9	57.4	72.5	87.7	63.2	61.4	56.7	3,A,ii,b
528830	Park Village East, London	LM7020	64.8	59.0	75.4	91.7	65.2	62.3	58.9	4,A,iii,b
528856	Park Village East, London	LM7020	64.8	59.0	75.4	91.7	65.2	62.3	58.9	4,A,i,a
528881	Park Village East, London	LM7020	64.8	59.0	75.4	91.7	65.2	62.3	58.9	4,A,i,a
528890	Park Village East, London	LM7020	64.8	59.0	75.4	91.7	65.2	62.3	58.9	4,A,i,a
528900	Park Village East, London	LM7020	64.8	59.0	75.4	91.7	65.2	62.3	58.9	4,A,ii,b
528939	Park Village West, London	LM1074	51.4	45.7	51.9	70.8	51.7	48.3	44.9	1,A,i,a
529017	Mornington Terrace, London	LM1309	60.4	55.5	66.5	82.8	60.7	57.7	55.2	3,A,ii,b
529041	Mornington Terrace, London	LM1309	60.4	55.5	66.5	82.8	60.7	57.7	55.2	3,A,i,a
529064	Mornington Street, London	LM1309	60.4	55.5	66.5	82.8	60.7	57.7	55.2	3,A,i,a
529185	Mornington Terrace, London	LM1305	60.7	55.2	65.4	80.6	61.0	59.2	54.5	3,A,ii,b
529201	Mornington Terrace, London	LM1309	60.4	55.5	66.5	82.8	60.7	57.7	55.2	3,A,ii,b
529302	Mornington Place, London	LM1305	60.7	55.2	65.4	80.6	61.0	59.2	54.5	3,A,ii,b
533032	Euston Road, London	LM1307	74.9	70.9	80.9	97.5	75.3	74.7	71.0	3,A,ii,b
533361	Doric Way, St. Pancras And Somers Town	LM1049	69.6	67.2	79.8	99.3	69.9	68.9	67.2	1,A,i,a

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding
			For operational sound assessment				For construction sound assessment			
			Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$	Arithmetic average of night-time $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	Daytime L_{pAeq}	Evening/ weekend L_{pAeq}	Night-time L_{pAeq}	
533433	Churchway, London	LM1303	52.5	49.9	68.7	88.1	52.5	49.9	49.9	3,D,ii,b
533445	Eversholt Street, London	LM1049	69.6	67.2	79.8	99.3	69.9	68.9	67.2	1,A,i,a
533673	Churchway, London	LM1303	57.1	54.7	68.7	88.1	57.8	56.8	55.1	3,A,i,a
533851	Eversholt Street, London	LM7025	68.7	66.3	76.1	95.6	69.4	68.4	66.7	3,A,i,a
533958	Chalton Street, London	LM1303	57.1	54.7	68.7	88.1	57.8	56.8	55.1	3,A,iii,b
534200	Eversholt Street, London	LM1049	69.6	67.2	79.8	99.3	69.9	68.9	67.2	1,A,ii,b
534286	Polygon Road, London	LM1303	57.1	54.7	68.7	88.1	57.8	56.8	55.1	3,A,iii,b
534557	Cobourg Street, London	LM7026	54.5	47.3	61.0	65.0	55.1	52.1	47.3	3,A,ii,b
534765	Cobourg Street, London	LM7026	54.5	47.3	61.0	65.0	55.1	52.1	47.3	3,A,i,a
534772	Starcross Street, London	LM7026	54.5	47.3	61.0	65.0	55.1	52.1	47.3	3,A,i,a
534932	North Gower Street, London	LM1075	55.2	46.7	50.8	70.6	55.5	63.6	46.3	1,A,iii,b
535017	Varndell Street, London	LM1200	67.7	63.5	75.1	87.8	68.0	65.8	63.7	1,A,ii,b
535091	Hampstead Road, London	LM7026	54.5	47.3	61.0	65.0	55.1	52.1	47.3	3,A,ii,b
535446	Hampstead Road, Regent'S Park	LM7027	68.7	64.5	73.5	86.2	69.0	66.8	64.7	3,A,ii,b
535454	Harrington Street, London	LM7027	59.9	55.7	73.5	86.2	60.2	58.0	55.9	3,C,ii,b
535501	Harrington Street, Regent'S Park	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,ii,b
535544	Augustus Street, London	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,ii,b

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535686	Cumberland Market, London	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,iii,b
535768	Varndell Street, London	LM1200	64.0	56.9	75.1	87.8	64.0	59.2	57.1	1,D,ii,b
536408	Euston Road, London	LM1307	74.9	70.9	80.9	97.5	75.3	74.7	71.0	3,A,ii,b
539626	North Gower Street, London	LM7026	54.5	47.3	61.0	65.0	55.1	52.1	47.3	3,A,ii,b
543159	Aldenham Street, London	LM7026	54.5	47.3	61.0	65.0	55.1	52.1	47.3	3,A,iii,b
544316	Albert Street, London	LM1075	55.2	46.7	50.8	70.6	55.5	63.6	46.3	1,A,iii,b
544328	Arlington Road, London	LM1075	55.2	46.7	50.8	70.6	55.5	63.6	46.3	1,A,iii,b
544630	Mornington Terrace, Regent'S Park	LM0059	59.1	53.6	67.9	83.1	59.1	57.3	52.6	3,A,i,a
545266	Harrington Square, London	LM1304	66.8	61.3	70.8	86.0	67.0	65.2	60.5	3,A,i,a
545326	Mornington Crescent, London	LM0058	61.8	56.3	65.0	80.2	62.1	60.3	55.6	1,A,ii,b
545365	Mornington Crescent, London	LM1305	55.7	50.2	65.4	80.6	56.0	54.2	49.9	3,B,ii,b
545455	Oakley Square, London	LM0058	61.8	56.3	65.0	80.2	62.1	60.3	55.6	1,A,ii,b
545616	Eversholt Street, London	LM0058	61.8	56.3	65.0	80.2	62.1	60.3	55.6	1,A,ii,b
545708	Ampthill Square, London	LM1308	64.3	61.9	75.9	95.4	64.7	63.7	62.0	3,A,ii,b
545716	Ampthill Square, London	LM0058	56.8	51.3	65.0	80.2	57.1	55.3	50.6	1,B,iii,b
545744	Ampthill Square, London	LM0058	56.8	51.3	65.0	80.2	57.1	55.3	50.6	1,B,iii,b
545762	Barnby Street, St. Pancras And Somers Town	LM7022	62.2	60.5	82.2	97.4	62.0	63.3	59.7	3,B,iii,b

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			Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$	Arithmetic average of night-time $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	Daytime L_{pAeq}	Evening/ weekend L_{pAeq}	Night-time L_{pAeq}	
545877	Harrington Square, London	LM1304	66.8	61.3	70.8	86.0	67.0	65.2	60.5	3,A,ii,b
545890	Harrington Square, London	LM7022	66.6	64.9	82.2	97.4	66.4	67.7	64.1	3,C,ii,b
545919	Hampstead Road, London	LM7027	68.7	64.5	73.5	86.2	69.0	66.8	64.7	3,A,ii,b
546176	Ampthill Square, London	LM0058	51.8	46.3	65.0	80.2	52.1	50.3	45.6	1,B,ii,b
546361	Mornington Place, London	LM0059	59.1	53.6	67.9	83.1	59.1	57.3	52.6	3,A,ii,b
547012	Hampstead Road, London	LM1200	67.7	63.5	75.1	87.8	68.0	65.8	63.7	1,A,ii,b
700187	Royal College Street, St. Pancras And Somers Town	LM0071	67.3	65.6	71.7	85.0	67.2	65.5	64.1	3,A,iii,b
700246	College Grove, London	LM0069	66.8	64.1	76.7	90.9	66.4	66.5	62.6	3,A,iii,b
700247	Unnamed Road, St. Pancras And Somers Town	LM1314	56.1	48.0	59.2	64.0	56.7	53.8	48.0	3,A,iii,b
700249	St. Pancras Way, London	LM1314	56.1	48.0	59.2	64.0	56.7	53.8	48.0	3,A,iii,b
700384	Mornington Terrace, Regent'S Park	LM1309	60.4	55.5	66.5	82.8	60.7	57.7	55.2	3,A,ii,b
700386	Park Village East, London	LM7020	64.8	59.0	75.4	91.7	65.2	62.3	58.9	4,A,ii,b
700387	Park Village East, London	LM1310	62.9	57.4	72.5	87.7	63.2	61.4	56.7	3,A,ii,b
700388	Stanhope Street, London	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,ii,b
700389	Hampstead Road, London	LM7027	66.0	61.8	73.5	86.2	66.3	64.1	62.0	3,C,ii,b
700391	Melton Street, London	LM1307	56.8	52.7	80.9	97.5	57.2	56.6	52.9	3,C,ii,b

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding
			For operational sound assessment				For construction sound assessment			
			Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$	Arithmetic average of night-time $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	Daytime L_{pAeq}	Evening/ weekend L_{pAeq}	Night-time L_{pAeq}	
700392	Hampstead Road, Regent'S Park	LM7026	54.5	47.3	61.0	65.0	55.1	52.1	47.3	3,A,ii,b
700393	Chester Place, London	LM1310	62.9	57.4	72.5	87.7	63.2	61.4	56.7	3,A,iii,b
700394	Robert Street, London	LM1200	60.3	56.1	75.1	87.8	60.6	58.4	56.3	1,BC,ii,b
710960	Albany Street, Regent'S Park	LM1200	67.7	63.5	75.1	87.8	68.0	65.8	63.7	1,A,iii,b
710962	Camden High Street, London	LM1304	66.8	61.3	70.8	86.0	67.0	65.2	60.5	3,A,iii,b
710964	Bayham Street, London	LM0059	59.1	53.6	67.9	83.1	59.1	57.3	52.6	3,A,iii,b
710965	Cumberland Market, London	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,iii,b
710966	Robert Street, London	LM7021	60.7	55.9	69.7	84.9	62.8	57.8	55.5	3,A,ii,b
710967	Clarence Gardens, London	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,iii,b
710968	Camden High Street, London	LM1304	66.8	61.3	70.8	86.0	67.0	65.2	60.5	3,A,iii,b
710969	Bayham Street, London	LM0059	59.1	53.6	67.9	83.1	59.1	57.3	52.6	3,A,iii,b
710970	Cardington Street, London	LM1200	67.7	63.5	75.1	87.8	68.0	65.8	63.7	1,A,ii,b
710971	William Road, London	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,iii,b
710972	Stanhope Street, London	LM7023	52.4	49.9	65.6	80.8	52.4	50.6	49.1	3,A,iii,b
710973	Oakley Square, London	LM0058	61.8	56.3	65.0	80.2	62.1	60.3	55.6	1,A,ii,b
710974	Cardington Street, London	LM7026	54.5	47.3	61.0	65.0	55.1	52.1	47.3	3,A,ii,b
710975	Cranleigh Street, London	LM7026	54.5	47.3	61.0	65.0	55.1	52.1	47.3	3,A,iii,b

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding
			For operational sound assessment				For construction sound assessment			
			Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$	Arithmetic average of night-time $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	Daytime L_{pAeq}	Evening/ weekend L_{pAeq}	Night-time L_{pAeq}	
710976	Crowndale Road, London	LM0059	59.1	53.6	67.9	83.1	59.1	57.3	52.6	3,A,iii,b
710977	Chalton Street, London	LM1303	57.1	54.7	68.7	88.1	57.8	56.8	55.1	3,A,iii,b
710978	Chalton Street, St. Pancras And Somers Town	LM1303	57.1	54.7	68.7	88.1	57.8	56.8	55.1	3,A,iii,b
711025	Committed Development C251-CM261	LM1303	57.1	54.7	68.7	88.1	57.8	56.8	55.1	3,A,iii,b

Table 2: Data source coding key

Code	Data source type
1	Long-term measurement location
2	Short-term (linked to simultaneous long-term)
3	Short-term (using profile from non-simultaneous long-term)
4	Short-term using standard (National Noise Incidence Study[3] or other) 24hr profile
5	Specific validated prediction
6	Predictions from other sources (Department of Environment, Food and Rural Affairs (Defra) noise maps[4], etc.)
7	Generic levels

Code	Corrections applied
A	Data from above source applied directly
B	Correction applied for screening
C	Correction applied for distance from source
D	Minimum level cut-off applied

Code	Distance from measurement
i	Data applied from a measurement at or very close to the assessment location.
ii	Data applied from a local measurement location at a greater distance but noted to have equivalent acoustic climate.
iii	Data applied from a distant measurement location where sound levels would be expected to be similar.

Code	Uncertainty
a	Data are considered highly representative of the prevailing sound climate.
b	Data are considered representative of the prevailing sound climate, but variations in measured levels indicate that there may be a higher degree of uncertainty than for (a).
c	Data are considered to be an estimate of the sound climate, (e.g. taken from Defra noise maps, etc.).

[3] Building Research Establishment (2002), *National Noise Incidence Study*, 2000/2001.
[4] Defra; Noise Mapping England; http://services.defra.gov.uk/wps/portal/noise/; Accessed: 26 July 2013.

3.3 Future baseline methodology

Construction

3.3.1 The assessment of noise from construction activities assumes a baseline year of 2017. As a conservative assumption, it has been assumed that no change in baseline sound levels will occur between the existing baseline (2012/13) and the future baseline year of 2017.

3.3.2 Due to the duration of the construction work and as the precise timing of the highest sound levels would be different in each location, using baseline sound levels for 2017 as the start of the construction period, provides a reasonable worst case assessment.

3.3.3 The assessment of construction traffic is based on future baseline traffic flows for 2021, as a year representative of the middle of the construction period.

Operation

3.3.4 There is potential for future baseline sound levels for operation (2026) to change when compared to the existing baseline sound levels (2012) as a result of changes in baseline sound sources.

3.3.5 In the vast majority of cases where change might occur it is expected that baseline sound levels will increase at assessment locations due to increases in vehicle movements on roads. It is therefore considered that the use of the 2012 baseline levels in the operational assessment will result in a worst case assessment of the impact of changes in the future baseline sound levels in the majority of locations.

3.3.6 Therefore for the purposes of this assessment future baseline levels have been assumed to be identical to those identified in Table 1 for 2012.

3.3.7 In addition, based on available road traffic information a screening exercise has been undertaken to identify any areas in which a reduction in baseline sound level might be likely. Where reductions in baseline sound level have been identified a further screening assessment has been completed to identify if these changes would be likely to materially affect the operational sound assessment.

3.3.8 The screening assessment has not identified any locations in this area where a decrease in future baseline (2026), compared to existing baseline (2012), is likely to materially affect the operational sound assessment.

4 References

Building Research Establishment (2002), *National Noise Incidence Study*, 2000/2001.

Defra; Noise Mapping England; http://services.defra.gov.uk/wps/portal/noise/; Accessed: 26 July 2013.